

Book Review

JOHNSON, C. G. 1969. Migration and dispersal of insects by flight. Methuen and Co. Ltd., London. xxii + 763 pp., 217 text fig., c. 1300 refs., £7/10/-.

In his massive tome (there are 62 pages of references; as well as six pages of Addenda containing an additional 27 references, some of them dated 1969) Johnson has gathered together an enormous amount of information dealing with practically all aspects of insect flight. But, as he maintains several times throughout the book, his aim is to stress mechanisms rather than the outcome of migratory, dispersal, or other kinds of flights made by insects, and this he has done admirably. The concise manner in which ideas are logically presented, interpreted and discussed is characteristic of the book; and it is the interpretation and conclusions, which are clearly Johnson's, that make this book so valuable, as well as enjoyable to read. Johnson, after all, is an expert on the flight of insects in relation to their ecology and he has expertly integrated a topic that previously consisted of an immense scattered literature on insect flight (since the vast majority of insects fly, there is bound to be reference to flight in most works dealing with the habits and life cycles of insects) as well as a few landmark works on insect migration into a cohesive form that emphasizes the importance of flight as a dominant aspect of insect ecology. For this reason the book is highly recommended as a text for a course in insect ecology.

There are six main parts in the book, with the first three (General Aspects; Individual Aspects; Collective Aspects) dealing essentially with the physiology and ecology of insect flight, while the last three (Selected Examples of Short-range and Medium-range Displacement, especially in Relation to the Life-histories of the Insects; Long-range Displacement in Relation to Large-scale Weather Systems; Migration and Habitats) give detailed discussions of items such as swarm displacement of the desert locust and the ecological significance of migration and of flightlessness.

There is very little to criticize in this book. The title includes the terms "migration" and "dispersal" yet because migration is synonymous with "adaptive dispersal" one wonders whether "dispersal" refers to "accidental or inadvertent dispersal between breeding habitats" as Johnson states on page 8 or to "the scattering of insect populations over wider areas than those occupied during development" which he terms, on page 3, "dispersal" or "dissemination". Nevertheless, the emphasis throughout the book is on migration, the "transfer of populations from place to place by mass flights" and "dispersal" does not rate a single entry in the index. Also, if migration and adaptive dispersal are synonymous, why are both terms given as though they were separate entities, such as on page 20? And I wonder about the use of the term "hibernation" in reference to the overwintering of the Monarch butterfly which, in Pacific Grove, California, at least, I have seen flying and feeding throughout the day on introduced ornamental flowers during the whole of the sunny winter. But this is quibbling; Johnson has written a book that brings into focus what he states as "the quantitative contribution of flight to the collective life of species", and in doing so he has produced a work that will remain for many years the main reference on insect flight. It is recommended to all who have an interest in this topic.

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